

TECHNICAL REVIEW DOCUMENT
For
RENEWAL OF OPERATING PERMIT 95OPWE103

DCP Midstream, LP – Enterprise Compressor Station
Weld County
Source ID 1230277

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January - February 2012

I. Purpose

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed Operating Permit for the Enterprise Compressor Station. The previous Operating Permit for this facility was issued on December 1, 2007 and will expire on December 1, 2012.

This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted on November 21, 2011, additional information submitted January 13, 2012, previous inspection reports, and various email correspondence with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

The Enterprise Compressor Station classified as a natural gas compressor station on a gas transmission line as set forth under Standard Industrial Classification Code 4922. The plant uses six (6) gas-fired internal combustion engines to drive compressors to boost the inlet gas pressure from about 80 PSIG to about 1050 PSIG to facilitate movement of the gas in the pipeline. All six (6) engines have individual stacks to vent the products of combustion.

The station also includes two (2) triethylene glycol (TEG) dehydrator units which contacts “lean” triethylene glycol with the inlet natural gas stream to remove moisture. The “rich” glycol mixture is regenerated in a still for reuse in the process. The still vent exhaust stream is sent to a flare where it is combusted. The TEG dehydration systems operate with a flash tank. The flash tank emissions are used as fuel for the TEG regenerator boilers.

A condensate product is generated when the inlet gas is routed through the inlet scrubber and transferred to eight (8) 300 barrel condensate storage tanks. A loading system is provided for moving the liquid condensate material from the tanks into a truck for transport offsite. The condensate tanks and loadout are controlled with a combustor.

The plant is located one (1) mile north of US Highway 76 on the Gutterson Road between the towns of Keenesburg and Roggen, Weld County, Colorado. The area in which the plant operates is classified as attainment for all pollutants except ozone. It is classified as non-attainment for ozone and is part of the 8-hr Ozone Control Area as defined in Regulation No. 7, Section II.A.16.

There are no affected states within 50 miles of the plant. Rocky Mountain National Park is a Federal Class I designated areas within 100 kilometers of the plant.

This plant is located in an area designated as attainment for all pollutants except ozone. Based on the information provided in the Title V application, this facility is categorized as a NANSR major stationary source (Potential to Emit of VOC or NO_x \geq 100 Tons/Year). Future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part D, Sections II.A.26 and 42) for VOC or NO_x or a modification which is major by itself (i.e. a Potential to Emit of \geq 100 TPY of either VOC or NO_x) may result in the application of the NANSR review requirements.

Based on the information provided by the applicant, this source is categorized as a minor stationary source for PSD as of the issue date of this permit. Any future modification which is major by itself (Potential to Emit of \geq 250 TPY (use 100 TPY if a listed source category)) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements.

Emissions at the facility are as follows:

	Potential to emit (tons/year)		
	NO _x	CO	VOC
Four G3612 engines	96.00	109.68	96.00
Two G3616 engines	64.02	73.16	64.02
Fugitive			18.22
Cond Tanks			1.28
Loadout			0.71
Dehy1			11.95
Dehy2			5.06
Flare	0.54	2.94	
Total	160.56	185.79	197.24

Emissions of hazardous pollutants are summarized on page 9 of this document.

Applicable Requirements

NESHAP Subpart ZZZZ

Engines C235, C236, and C238 are considered existing engines under Subpart ZZZZ and are not subject to any requirements, in accordance with §63.6590(b)(3)(ii). Engine P018 and the two new Caterpillar G3616 engines permitted under this renewal issuance are considered new under the rule and are subject to requirements to reduce CO emissions or limit formaldehyde concentrations.

NESHAP Subpart HH

Since this facility is considered a production field facility, only HAP emission from glycol dehydration units and storage vessels with the potential for flash emissions are aggregated for major source determinations under Subpart HH. The HAP emissions from these units are below the major source threshold and therefore this facility is considered an area source under this rule. Pre-controlled emissions are, however, greater than major source level, therefore the dehydrators have synthetic minor HAP limitations. Previously, the original dehydrator was exempt from Subpart HH since actual benzene emissions were below the 1984 lb/year threshold. The increased capacity and additional dehydrator result in an exceedance of this exemption threshold and therefore the dehydrator are now required to operate the equipment within the optimum glycol circulation rate, as determined according to the provisions of Subpart HH.

NSPS JJJJ

Applicability of 40 CFR Part 60 Subpart JJJJ for spark-ignition engines is based on the construction date, date of manufacture, and power rating. For the purposes of

determining applicability to the provisions of Subpart JJJJ, the date that construction commences is the date the engine is ordered. The rule specifies that for lean burn engines greater than 500 hp, requirements apply to units both ordered after June 12, 2006 and manufactured after July 1, 2007. Three existing engines at this facility, C235, C236, and C238 were ordered prior to June 12, 2006. Engine P018 was ordered after the June 12, 2006 applicability date but manufactured prior to July 1, 2007 and is therefore not subject to the requirements of Subpart JJJJ. The two new engines to be constructed at this facility, C-237 and C-239, will be subject to NSPS Subpart JJJJ, which requires the engines to abide by the standards for new nonroad SI engines in 40 CFR Part 1098.

Regulation No. 7

All engines at the facility are subject to Section XVI.B.2, which requires the installation of an oxidation catalyst.

Pursuant to Reg 7, Section XVII.B.4, engine P018 and the two new engines, C-237 and C-239, are exempt from Section XVII.E as they are subject to MACT control requirements. Three existing engines, C235, C236, and C238, are subject to the requirement in XVII.E.3.b.(i) to install an oxidation catalyst. However, this requirement is state-only enforceable and less stringent than the XVI requirement, therefore, the XVII.E requirement was streamlined from the permit.

Section XVII.C includes state-only requirements to equip condensate tanks with control equipment and has been streamlined from the permit.

Section XII.H and Section XVII.D require that the dehydrators be equipped with emission control equipment capable of reducing VOC emissions by 90%. These requirements are less stringent than the 95% control required by the underlying construction permit for the existing dehydrator and therefore have been streamlined from the permit. XVII.D.2 specifies that flares used to comply with Section XVII must be enclosed and have no visible emissions.

Compliance Assurance Monitoring

The first renewal issuance of the Enterprise operating permit included CAM requirements only for the dehydrator. Based on the information provided to the Division, uncontrolled emissions from each of the six compressor engines are above major source thresholds. Each of the engines is equipped with an oxidation catalyst to achieve compliance with the emissions limitations and therefore subject to the provisions of the CAM program. The second new dehydrator is also subject to the provisions of CAM.

RACT Analysis

The source submitted a RACT analysis with the construction permit modification application. All of the sources at the Enterprise station will utilize RACT to minimize the NO_x and VOC emission per Regulation No. 7. The dehydration units, condensate tanks and loadout, and engines are equipped with emission control devices. Weekly audio, visual, and olfactory inspections will be conducted to monitor fugitive emissions from equipment leaks.

Greenhouse Gases

The potential to emit greenhouse gases at this facility is less than 100,000 TPY CO₂e. Future modifications at this facility that exceed 100,000 TPY CO₂e may be subject to regulation.

Source Determination

With this permit action, the Division revisited the source determination in regards to natural gas operations in the area surrounding the Enterprise facility. DCP did not identify any pollutant emitting activities in the Enterprise vicinity that are dependent upon the Enterprise compressor station to maintain operation. The Division considers the current determination for the facility to be accurate.

III. Discussion of Modifications Made

Source Requested Modifications

The renewal application and construction permit modification received on November 21, 2011 and January 13, 2012, respectively, requested the following modifications:

- Incorporate the requests of the April 5, 2010 minor modification. This modification requested that the wording in the dehydrator's CAM plan be modified to allow the use of temperature sensing instruments other than thermocouples to verify the presence of a flame. Also, in this modification the compliance emission factors for engine P018 were corrected to properly correspond with the annual emission limits.
- Remove all references to engine C234 and the SVE unit as they have been removed from the facility and their permits cancelled.
- Incorporate the modifications requested in a January 5, 2012 construction permit modification application. This requested the four existing engines to be permitted at the same horsepower and emissions limits. This modification also included the addition of two Caterpillar G3616 compressor engines. This increase in compression capacity is accompanied by a requested increase in dehydrator output for the existing dehydrator and the addition of a second dehydrator as well as a condensate throughput limit increase and the addition of four new stabilized condensate tanks. The fugitive and loadout emission were also updated in the construction permit application to account for these changes. An enclosed combustor will be added to the stabilized condensate tanks and the associated loadout.

- Correct the serial number of engine P018.

The source's requested modifications were addressed as follows:

Page following cover page

- Updated the responsible official and permit contact in accordance with the information submitted with the renewal application.

Section I – General Activities and Summary

- Revised the description of permitted activities to account for the new equipment.
- The serial number for engine P018 was corrected in the summary of emission units in Condition 6.

Section II – Specific Permit Terms

- The compliance emission factors for engines C235, C236, C238, and P018 were corrected as requested in the renewal application.
- The annual emissions and natural gas consumption/throughput limitations were adjusted in accordance with the APENs submitted with the construction permit modification application.
- The SVE unit was removed entirely from the permit.

Section II.2 – New Caterpillar G3616 Engines

- Provisions for the construction of the two new Caterpillar G3616 engines were added directly in the Title V permit.
- Requirements identical to those for the existing engines were added for the new engines. The applicable provisions from NSPS JJJJ were also included in the permit.

Section II.3 – New TEG Dehydrator

- Provisions for the construction a new TEG dehydrator were added directly in the Title V permit.
- The requirements for the new dehydrator, D-3, were made identical to those for the existing dehydrator, with the exception of minor changes made to requirements applicable to both dehydrators.
- The flare used to control VOC emission from the dehydrators was moved to its own condition.

Section II.4 – Condensate Loadout

- Requirements for the combustion device added to control loadout emissions were added to the permit.

Section II.6 – Condensate Tanks

- Provisions for the construction a four new condensate tanks were added directly in the Title V permit.
- Requirements for the combustion device added to control tank emissions were added to the permit.

Appendices

- Revised the CAM plan requirements to allow for a heat sensing device other than a thermocouple as requested.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal. These changes are as follows:

Section I – General Activities and Summary

- Revised the language in Condition 1.4 include current conditions that are state-only enforceable.
- Updated the AOS for engine replacement with the most current version (10/1/2011). The new compressor engines were also added to Table 1 of Condition 2.

Section II – Specific Permit Terms

- Language changes were made throughout the permit to make it more consistent with recently issued DCP permits.
- The compliance testing condition for the existing engines was removed as initial compliance testing has already occurred.
- The requirement to follow the most recent Division-approved operation and maintenance plan for both the engines and dehydrator was replaced with the applicable provisions from the plan.
- The inlet gas composition limitations were adjusted in accordance with the GLYCalc run submitted with the application.
- The formaldehyde emission limitations have been removed from the operating permit as the source is already a major source of HAPs.
- The calculations in Condition 12 were removed and included under the specific emission unit. The conversion equations for stack flow data and portable monitoring calculations were removed from the permit. This information can be found in the portable monitoring info on the Division's website.

Section III – Permit Shield

- Several requirements were streamlined from the permit as discussed above.

Section IV – General Permit Conditions

- Updated the general permit conditions to the current version (11/16/2010).

Appendices

- Added a contact name for the Division in Appendix D.
- Added the engine replacement AOS applicability reports to Appendix H.
- The CAM plan was revised to include requirements for the engines at this facility which are subject to CAM.

POINT	Description	Potential to emit (lb/year)						TOTAL REPORTABLE (tpy)
		Formaldehyde	Acetaldehyde	Benzene	Acrolein	Toluene	n-Hexane	
053	Cat G3612SI Nat. Gas Engine	5,485	879		540			3.5
055	Cat G3612SI Nat. Gas Engine	5,485	879		540			3.5
056	Cat G3612SI Nat. Gas Engine	5,485	879		540			3.5
062	Fugitives			264			1,710	1.0
066	Condensate Truck Loadout							
068	Latoka Glycol Dehydrator			6,231		3,650		4.9
063	Stabilized Condensate Tanks							
070	Cat G3612SI Nat. Gas Engine	5,485	879		540			3.5
071	Cat G3616 Engine	7,681	1,297	68	797			4.9
072	Cat G3616 Engine	7,681	1,297	68	797			4.9
073	Dehy D3			2,646		1,549		2.1
074	Flare							
	TOTAL (lb/year)	37,302	6,110	9,277	3,754	5,199	1,710	63,352
	TOTAL (tons/year)	18.7	3.1	4.6	1.9	2.6	0.9	31.7